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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,663

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Atsushi Nakamura

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EXAMINER

CHOW, LIXI

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/715,663	Applicant(s) NAKAMURA ET AL.	
	Examiner Lixi Chow	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-19 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,13-19 and 21 is/are rejected.
- 7) ☒ Claim(s) 10-12 and 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/26/08 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4-7, 9, 13, 14, 16-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tasaka et al. WO 02/089123 (see Tasaka et al. US 7,068,579; hereafter Tasaka'579) in view of Van Den Enden et al. WO00/34952 (see US 6,628,583; hereafter Van Den Enden'583).

Regarding claim 1:

Tasaka'579 discloses a recording/reproduction method, comprising the steps of:

generating a binary signal by converting a reproduction signal to a binary form (see Fig. 23; signal d4 is binary signal);

generating a synchronization signal using the binary signal, the synchronization signal being in synchronization with a clock signal (see Fig. 23; signal d5a is the synchronization signal);

measuring a time interval between the binary signal and the synchronization signal and measuring an edge shift amount between the time interval and a clock time interval specified by the clock signal (see Fig. 23 and col. 9, lines 8-17); and

changing a parameter of a recording pulse based on the edge shift amount (see col. 9, lines 14-22);

wherein the reproduction signal is a signal obtained by reproducing a predetermined signal sequence, as a function of the edge shift amount (see Fig. 23; signal d20a or d20b represents a signal as a function of edge shift amount).

Tasaka'579 teaches the reproducing signal is a signal obtained from a predetermined test signal; therefore, Tasaka'579 fails to disclose the reproduction signal is a signal obtained from reproducing a random signal. However, Van Den Enden'583 discloses a recording/reproducing method, comprising the step of recording/reproducing arbitrary random signal sequence (see col. 2, lines 59-65).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Tasaka'579, so that the reproducing signal is obtained from an arbitrary random signal sequences instead of the predetermined signal sequences. One of ordinary skill would have been motivated to do this, because material defects in the recording layer of a location due to repeated writing of the same patterns are counteracted (see Van Den Enden'583, col. 2, lines 59-65).

Regarding claim 2:

Tasaka'579 discloses the recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring the edge shift amount for each number of clock cycles of the clock signal (see col. 9, lines 25-30).

Regarding claim 4:

Tasaka'579 discloses the recording/reproduction method according to claim 1, wherein the parameter of the recording pulse includes at least one of a movement amount, a power, and a width of the recording pulse (see Fig. 23; the write strategy correction section corrects at least one of a movement amount, a power, and a width of the pulse).

Regarding claims 5-7:

Tasaka'579 discloses the recording/reproduction method according to claim 1, wherein the step of measuring the edge shift amount comprises measuring a leading edge time interval between a mark leading edge of the binary signal and a mark trailing edge of the synchronization signal, and measuring a leading edge shift amount between the leading edge time interval and the clock time interval (see col. 9, lines 8-17; signal d20a is determined by measuring the leading edge time interval between the mark leading edge of the signal d4 and the mark trailing edge of the signal d5a); and/or

the step of measuring the edge shift amount comprises measuring a trailing edge time interval between a mark trailing edge of the binary signal and a mark leading edge of the synchronization signal, and measuring a trailing edge shift amount between the trailing edge time interval and the clock time interval (see col. 9, lines 8-17; signal d20b is determined by

measuring the trailing edge time interval between a mark trailing edge of the signal d4 and the mark leading edge of the signal d5a).

Regarding claim 9:

Tasaka'579 discloses the recording/reproduction method according to claim 1, wherein:
the recording pulse contains a first pulse and a cooling pulse (see Fig. 24 (b)); and
parameters of the first pulse and the cooling pulse are grouped into three or more categories depending on mark length (see Fig. 24 (b); F1, P10, Sm, and etc are the parameters of first pulse and the cooling pulse).

Regarding claims 13, 14, 16-19 and 21:

The above listed claims recite similar limitations as in claims 1, 2, 4-7 and 9; hence, they are rejected under the same reasons set forth in claims 1, 2, 4-7 and 9.

4. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tasaka'579 in view of Van Den Enden'583 as applied to claims 1 and 13 above, and further in view of Nakajima et al. WO 02/084653 (see Nakajima et al. US 7,095,696; hereafter Nakajima'696).

Regarding claim 3:

Tasaka'579 fails to disclose the step of calculating a mean value of the edge shift amount. However, Nakajima'696 discloses a recording/reproduction method, wherein the step of measuring the edge shift amount comprises repeatedly measuring a edge shift amount, integrating the measured time intervals, and calculating a mean value of the edge shift amount (see col. 20, lines 26-35).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Tasaka'579 by repeatedly measuring the time interval between the binary signal and the synchronization signal, and calculating the mean value of the edge shift amount as taught by Nakajima'696. One of ordinary skill in the art would have been motivated to do this, because optimization of the edge shift amount can be achieved.

Regarding claim 15:

Claim 15 recites similar limitations as claim 3; hence, claim 15 is rejected under the same reasons set forth in claim 3.

Allowable Subject Matter

5. Claims 10-12 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In regards to claim 10-12, none of the reference of record along or in combination disclose or suggest a recording/reproduction method, wherein: the measuring step comprises measuring a jitter value; the recording pulse contains a first pulse, a multipulse, and a cooling pulse; and the **step of changing the parameter of the recording pulse comprises changing a movement amount of the first pulse based on the leading edge shift amount, changing a movement amount of the cooling pulse, and/or multipulse based on the trailing edge shift amount, and changing a movement amount of the multipulse, and/or cooling pulse based on the jitter value, and/or changing a power of the multipulse based on the trailing edge shift amount.**

Claims 22-24 recite similar limitations as claims 10-12; hence, they are objected under the same reasons set forth in claims 10-12.

Response to Arguments

6. Applicant's arguments filed 2/26/08 have been fully considered but they are not persuasive.

Applicant argues that "Neither Tasaka et al. nor Van Den Enden et al teach or render obvious obtaining the reproduction signal by reproducing an arbitrary random signal sequence as a function of the edge shift amount". However, as set forth in the rejection above, Tasaka et al. disclose that the signal d20a or d20b represents a signal as a function of edge shift amount.

The difference between the claimed invention and Tasaka et al. is that Tasaka et al. use a predetermined signal sequence whereas the claimed invention uses an arbitrary random signal. Since Van Den Enden et al. clearly shows an advantage of recording random signal sequence, one of ordinary skill in the art would have been obvious to substitute the arbitrary random signal of Van Den Enden et al. for the predetermined signal of Tasaka et al. Also, a person of ordinary skill in the art would have recognized that using an arbitrary random signal would have yielded predictable results.

Accordingly, claims 1, 2, 4-7, 9, 13, 14, 16-19 and 21 are not patentable over Tasaka et al. in view of Van Den Enden et al.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

Art Unit: 2627

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LC 3/28/08

/Wayne R. Young/
Supervisory Patent Examiner, Art Unit 2627